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EXAMINER	
FUJITA, KATRINA R	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/849,409	SITES, RICHARD L.	
	Examiner	Art Unit	
	Katrina Fujita	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-113* is/are pending in the application.

4a) Of the above claim(s) *22-53 and 82-113* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21 and 54-81* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 22-53 and 82-113 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on December 10, 2007.

Specification

2. The disclosure is objected to because of the following informalities:

On page 54, line 23, "What is claimed is:" should be removed from the specification and placed in the first line of the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

4. Claims 61-81 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 61-81 define a software product embodying functional descriptive material. While the claims define a machine-readable medium, they do not necessarily define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention

encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to "note" below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

A "signal" (or equivalent) embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory classes of § 101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible material.

Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a "signal", the claim as a whole would be non-statutory. In the case where the specification defines the computer readable medium or memory as statutory tangible products such as a hard drive, ROM, RAM, etc, as well as a non-statutory entity such as a "signal", "carrier wave", or "transmission medium", the examiner suggests amending the claim to *include* the disclosed tangible computer readable media, while at the same time *excluding* the intangible media such as signals, carrier waves, etc.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-6, 9-13,15, 61-66, 69-73 and 75 rejected under 35 U.S.C. 103(a) as being unpatentable over Koshi et al. (US 5,701,367).

Regarding **claims 1 and 61**, Koshi et al. discloses a method and software product, tangibly embodied in a machine-readable medium, for processing digital data, the software product comprising instructions operable to cause one or more data processing apparatus to perform operations ("device for digitizing an image and coding the image digitized" at col. 1, line 9) comprising:

receiving digital data (figure 12, numeral 16);

identifying code values (figure 12, numeral 113) of an input representation of the received digital data (figure 12, numeral 16), the code values having variable bit widths (figure 11, numeral 105) and representing data values for one or more representation components (figure 11, numeral 103; "transform coefficient" at col. 2, line 54);

for each representation component, generating a first bit width distribution that defines a respective frequency of occurrence for two or more different bit widths based on bit widths of data values for that representation component in the input

representation (figure 11, numeral 105; "the quantization index 310 generated from the means 303 is subjected to variable length coding" at col. 2, line 58); and

using the generated first bit width distributions to estimate a storage size of an output representation that uses code values having variable bit widths to represent the digital data (figure 11, numeral 106; "code data amount 311 is measured and a quantization step as a preset code amount is estimated according to the result of measurement" at col. 2, line 61).

Koshi et al. does not disclose recoding the decoded image data with the image coder to generate the first bit width distribution and storage size estimation of an output representation.

However, it is well-known in the prior art to recode image data after decoding and therefore would have been obvious to one of ordinary skill in the art to utilize the image coder of Koshi et al. to recode the decoded image data generated by the decoder of Koshi et al. in order to achieve a desired output image quality and size.

Regarding **claims 2 and 62**, Koshi et al. discloses a method and software product wherein:

receiving digital data includes receiving the digital data in the input representation (figure 12, numeral 16).

Regarding **claims 3 and 63**, Koshi et al. discloses a method and software product wherein the representation components include frequency components of a discrete Fourier transform or a discrete cosine transform (figure 11, numeral 102; "discrete cosine transform" at col. 2, line 36).

Regarding **claims 4 and 64**, Koshi et al. discloses a method and software product wherein the digital data includes a digital image (figure 12, numeral 16; "natural image region" at col. 12, line 13; "digital data" at col. 1, line 14).

Regarding **claims 5 and 65**, Koshi et al. discloses a method and software product wherein the input representation includes an input JPEG representation of the digital image (figure 12, numeral 16; "JPEG" at col. 2, line 10).

Regarding **claims 6 and 66**, Koshi et al. discloses a method and software product wherein the output representation includes and output JPEG representation of the digital image (figure 4, numeral 16; "JPEG" at col. 2, line 10).

Regarding **claims 9 and 69**, Koshi et al. discloses a method and software product wherein the input representation includes markers to identify code values, the markers being encoded based on a first Huffman encoding (figure 11, numeral 105; Huffman coding includes markers or particular code words).

Regarding **claims 10 and 70**, Koshi et al. discloses a method and software product wherein the markers include code heads and end-of-block markers (Huffman coding includes end-of-block markers or signifiers and code headers containing information about the block data).

Regarding **claims 11 and 71**, Koshi et al. discloses a method and software product wherein the output representation includes markers encoded based on a second Huffman encoding (Huffman coding resulting from recoding the image data following decoding).

Regarding **claims 12 and 72**, Koshi et al. discloses a method and software product wherein the second Huffman encoding is different from the first Huffman encoding (the Huffman coding will be different the second time around since it is based on different estimation parameters).

Regarding **claims 13 and 73**, Koshi et al. discloses a method and software product wherein:

estimating a storage size of the output representation includes estimating a total number of bits in the output representation ("code data amount 311 is measured and a quantization step as a preset code amount is estimated according to the result of measurement" at col. 2, line 61).

Regarding **claims 15 and 75**, Koshi et al. discloses a method and software product further comprising:

receiving one or more compression parameters for the output representation (figure 5, numeral 11).

7. Claims 7, 8, 67 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koshi et al. and common knowledge in the art as evidenced by Bacus et al. (US 6,272,235).

Koshi et al. discloses the elements of claims 5 and 65 as described in the 103 rejection above.

Koshi et al. does not disclose generating the input JPEG representation from a bitmap representation of the digital image, wherein: generating the input JPEG representation includes sampling the bitmap representation of the digital image.

However, bitmap to JPEG conversion is well-known in the art and therefore would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize a bitmap to JPEG conversion, which accordingly samples the bitmap, to accommodate an additional type of image input file without sacrificing efficiency ("convert the bitmap files to a JPEG (.jpg) format, which requires less storage space and consequently less time to display on a computer" at col. 9, line 3).

8. Claims 16-19, and 76-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Koshi et al. and Bagni et al. (US 6,215,820).

Regarding **claims 16 and 76**, Koshi et al. discloses a method and software product wherein estimating the storage size of the output representation includes:

determining a respective bit reduction for each representation component based on one or more of the compression parameters ("code amount of the character image region becomes the preset target code amount" at col. 11, line 36) ;

for each representation component, modifying the first bit width distribution based on the respective bit reduction to generate a second bit width distribution (figure 9, numeral 82); and

using the second bit width distribution to estimate the storage size of the output representation (figure 11, numeral 106).

Koshi et al. does not disclose that the second bit width distribution specifies estimated frequencies of occurrence for bit widths in the output representation.

Bagni et al. teaches a method and software product, tangibly embodied in a machine-readable medium, for processing digital data, the software product comprising instructions operable to cause one or more data processing apparatus to perform operations wherein a second bit width distribution that specifies estimated frequencies of occurrence for bit widths in the output representation ("statistical calculation (with histograms) of the entropy of the DCT coefficients that approximates the average characteristic waveform of the bits necessary to encode the DCT coefficients" at col. 9, line 20).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the histogram of Bagni et al. to estimate the storage size of the JPEG of Koshi et al. to allow a "large reduction of the memory necessary for storing the data" (Bagni et al. at col. 14, line 5).

Regarding **claims 17 and 77**, Koshi et al. discloses a method and software product wherein the compression parameters specify a respective quantizor for each representative component ("occur M kinds of values of the prediction error" at col. 11, line 20), and wherein:

determining the respective bit reduction for each representation component includes determining the respective bit reduction based on the respective quantizor for each representation component (equations at col. 11, lines 18 and 31).

Regarding **claims 18 and 78**, Bagni et al. discloses a method and software product wherein estimating the storage size of the output representation includes:

for each representation component, estimating a respective average number of code bits for each bit width in the second bit width distribution ("statistical calculation (with histograms) of the entropy of the DCT coefficients that approximates the average characteristic waveform of the bits necessary to encode the DCT coefficients" at col. 9, line 20); and

using the second bit width distribution to estimate the storage size includes multiplying the respective average number of code bits with the estimated frequencies of occurrence specified by the second bit width distribution (equations at col. 13, lines 12, 15 and 27).

Regarding **claims 19 and 79**, Bagni et al. discloses a method and software product wherein:

the corresponding average number of bits is estimated based on bit widths in the input representation ("number of total bits S_{GOS} produced by the encoder for each GOS being processed" at col. 13, line 6).

9. Claims 14, 20, 21, 74, 80 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Koshi et al. and Li et al. (US 6,704,358).

Regarding **claims 20 and 80**, Koshi et al. discloses the elements of claims 15 and 75 as described in the 103 rejection above.

Koshi et al. does not disclose that the compression parameters specify an output pixel resolution of the digital image in the output representation, and wherein:

estimating the storage size of the output representation includes estimating the storage size based on the output pixel resolution.

Li et al. teaches a method and software product, tangibly embodied in a machine-readable medium, for processing digital data, the software product comprising instructions operable to cause one or more data processing apparatus to perform operations ("method and apparatus for resizing image and motion vector information" at col. 1, line 14; "computer program code embodied in a tangible media, such as floppy diskettes, CD-ROMs, hard drives, or any other computer readable storage medium, wherein, when the computer program code is loaded into and executed by a computer, the computer becomes an apparatus for practicing the invention" at col. 17, line 43) wherein the digital data includes a digital image (figure 6, "IN") and the compression parameters ("scaling factor SF" at col. 12, line 29) specify an output pixel resolution of the digital image in the output representation (figure 8, "P-Point Sample"), and wherein:

estimating the storage size of the output representation includes estimating the storage size based on the output pixel resolution ("number of samples to produce the desired resolution" at col. 10, line 56; "compressing image information prior to storage" at col. 3, line 28).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the output pixel resolution requirements of Li et al. to factor into

the storage size estimation of Koshi et al. to "reduce computational demands" (Li et al. at col. 11, line 58).

Regarding **claims 21 and 81**, Li et al. discloses a method and software product wherein the input representation specifies an input pixel resolution of the digital image ("N-point sample" at col. 12, line 2), and wherein:

estimating the storage size based on the output pixel resolution includes using a square root of the ratio of the input pixel resolution and the output pixel resolution ("scales each DCT coefficient within the padded DCT coefficient block by a factor of sqrt(P/N)" at col. 12, line 16).

Regarding **claims 14 and 74**, Li et al. discloses a method and software product wherein:

estimating a storage size of the output representation includes estimating a transmission time for transmitting the output representation over a link (as Li et al. takes the output resolution into consideration, it is shown that it affects the output stream to "reduce memory resource demands (e.g. memory bandwidth)" at col. 11, line 59, which accordingly has an associated time required for transmission for display, depending on the size of the output stream).

10. Claims 54-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Koshi et al. and Ogawa (US 6,072,479).

Regarding **claim 54**, Koshi et al. discloses a system for processing data ("device for digitizing an image and coding the image digitized" at col. 1, line 9), the system comprising:

a device (figure 4, numeral 47) for generating an output representation of digital data (figure 4, numeral 16), the output representation using code values having variable bit widths to represent the digital data (figure 11, numeral 105); and

a data processing device (figure 4, numerals 41-46; figure 12) configured to:

identify code values (figure 12, numeral 113) of an input representation of the received digital data (figure 12, numeral 16), the code values having variable bit widths (figure 11, numeral 105) and representing data values for one or more representation components (figure 11, numeral 103; "transform coefficient" at col. 2, line 54);

generate a first bit width distribution for each representation component, the first bit width distribution defining a respective frequency of occurrence for two or more different bit widths based on bit widths of data values for that representation component in the input representation (figure 11, numeral 105; "the quantization index 310 generated from the means 303 is subjected to variable length coding" at col. 2, line 58); and

use the generated first bit width distributions to estimate a storage size of the output representation (figure 11, numeral 106; "code data amount 311 is measured and a quantization step as a preset code amount is estimated according to the result of measurement" at col. 2, line 61).

Koshi et al. does not disclose recoding the decoded image data with the image coder to generate the first bit width distribution and storage size estimation of an output representation.

However, it is well-known in the prior art to recode image data after decoding and therefore would have been obvious to one of ordinary skill in the art to utilize the image coder of Koshi et al. to recode the decoded image data generated by the decoder of Koshi et al. in order to achieve a desired output image quality and size.

Koshi et al. does not disclose an input device to receive user input specifying parameters for generating the output representation.

Ogawa teaches a system for processing digital data comprising:

an input device (figure 1) to receive user input specifying parameters ("user may specify any of the following attributes for each media type and enter a value for it" at col. 11, line 19) for generating an output representation ("media object to be created" at col. 4, line 21).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the input device of Ogawa in the system of Koshi et al. to allow the user to have greater control over the result of processing.

Regarding **claim 55**, Koshi et al. discloses a system wherein the data processing device includes one or more components of a computer ("image coding device which can securely control a total code amount to a fixed amount in coding image data" at col. 4, line 22).

Regarding **claim 56**, Koshi et al. discloses a system wherein the data processing device includes data processing components in a portable image capturing or image displaying device ("decoding circuit for decoding the code data" at col. 13, line 19).

Regarding **claim 57**, Koshi et al. discloses a system further comprising:

a data storage device having an available storage capacity to store the digital data ("digital image storing device" at col. 1, line 12; "stored in memory" at col. 1, line 16).

Regarding **claim 58**, Koshi et al. discloses a system wherein:

the data processing device is configured to determine compression parameters for the output representation of the digital data based on the available storage capacity of the data storage device ("securely control a total code amount to a fixed amount in coding image data" at col. 4, line 22, which is limited by the amount of space available).

Regarding **claim 59**, the Koshi et al. and Ogawa combination discloses a system further comprising:

a display device ("module displays the media attribute information" Ogawa at col. 11, line 14) to present the estimated storage size of the output representation ("data size information" Ogawa at col. 12, line 50).

Regarding **claim 60**, the Koshi et al. and Ogawa combination discloses a system wherein the digital data includes one or more digital images (Koshi et al. at figure 12, numeral 16), and wherein:

the data processing device is configured to generate a graphical representation to indicate a respective storage size for each digital image ("data size information"

Ogawa at col. 12, line 50), the graphical representation including a respective graphics object for each digital image ("create a slot object and a surrogate media object one by one" Ogawa at col. 12, line 51), the respective graphics object including a visual representation of the digital image (figure 6) and having a linear size that is proportional to the storage size of the digital image (the storage size is proportional to the display resolution of the image); and

the display device is configured to present the generated graphical representation ("screen displayed by the surrogate media list module" Ogawa at col. 11, line 2; "displays data size information, calculated by calculation module 16, for each media type and for the overall application" at col. 12, line 47).

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katrina Fujita whose telephone number is (571) 270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KF

Katrina Fujita
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